

What is claimed is:

1. A sheet reversing controller comprising:
 - a first conveying path to convey plural sheets in a first direction with a specified gap;
 - a reversing portion arranged at the downstream in the conveying direction of the first conveying path, comprising a reversing roller capable of normal and reverse rotations to take and reverse the sheets fed from the first conveying path and a pinch roller arranged opposing to the reversing roller;
 - a second conveying path to take and convey the sheets fed in a second direction differing from the first direction of the first conveying path by the reversing portion; and
 - a controller to controll the conveyance of the sheets so that the conveying gap between the sheets conveyed on the second conveying path becomes equal to the specified conveying gap when conveyed on the first conveying path regardless of lengths of plural sheets.
2. The sheet reversing controller according to claim 1, wherein the controller sets a protruding amount of the sheets protruding between the reversing portion and the second conveying path when the sheets are stopped for reversing the conveying direction of the sheets to a fixed length regardless of lengths of the sheets.
3. The sheet reversing controller according to claim 1, wherein the controller controls a tangential velocity of the reversing roller when rotating in the normal direction so as to agree with a conveying velocity of the sheets before the sheets fed from the first conveying path reaches the reversing roller in the reversing portion.
4. The sheet reversing controller according to claim 1, wherein the controller controls a tangential velocity of the reversing roller when rotating in a reverse direction to feed the sheets in the second direction differing from the conveying direction of the first conveying path so as to agree with the conveying velocity of the second conveying path to take and convey the sheets.

5. A sheet reversing control method comprising:
 - conveying plural sheets on a first conveying path in a first direction with a specified gap;
 - taking and reversing the sheets fed from the first conveying path in a reversing portion arranged at the downstream in a conveying direction of the first conveying path comprising a reversing roller that is capable of normal/reverse rotation and a pinch roller arranged opposing to the reversing roller;
 - taking the sheets in a second direction differing from the first direction after reversing by the reversing portion and conveying on the second conveying path; and
 - controlling a conveyance of the sheets so that the conveying gap of the sheets conveyed on the second conveying path becomes equal to the specified gap when conveyed on the first conveying path regardless of the lengths of the plural sheets.
6. The sheet reversing control method according to claim 5, wherein the control step controls an amount of the sheet protruding between the reversing portion and the second conveying path when stopping the sheets for reversing its conveying direction to a fixed length.
7. The sheet reversing control method according to claim 5, wherein the control steps controls a tangential velocity of the reversing roller in the normal rotation to agree with a conveying velocity of the sheets before the sheets fed from the first conveying path reaches the reversing roller of the reversing portion.
8. The sheet reversing control method according to claim 5, wherein the control steps controls a tangential velocity of the reversing roller when rotating in a reverse direction to feed sheets in the second direction that is differing from the conveying direction of the first conveying path from the reversing portion to agree with a conveying velocity of the second conveying path for taking and conveying the fed sheet become in accord with each other.